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09/879,529	06/12/2001	Junya Shimizu	JP920000126US1	3180

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EXAMINER	
ROSARIO, DENNIS	
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	09/879,529	SHIMIZU ET AL.	
	Examiner	Art Unit	
	Dennis Rosario	2624	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *15 June 2007*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,5,6,10-13,15-17,20,21,24,25 and 28-30* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,5,6,10-13,15-17,20,21,24,25 and 28-30* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *6/12/01* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☒ Interview Summary (PTO-413) Paper No(s)/Mail Date. *7/27/07*.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Response to Amendment

1. The amendment was received on 6/15/07. Claims 1,5,6,10-13,15-17,20,21,24,25,28,29 and 30 are pending.

Response to Arguments

2. Applicant's arguments on page 11 of the REMARKS filed 6/15/07 have been fully considered but they are not persuasive and states:

> **"For this reason, one skilled in the art would not be motivated to combine the method of linear interpolation disclosed by Miyake with the image display apparatus disclosed by Taylor."**

The examiner respectfully disagrees in the context of the above mentioned "reason" since Taylor does not teach away from using the display apparatus of fig. 2, num. 150. If Taylor does teach away from using fig. 2,num. 150, please indicate via column/line numbers.

3. Applicant's arguments on page 20 have been fully considered but they are not persuasive and states:

> **"...Miyake '963 nonetheless fails to teach determining whether the contrast in the original image data can be maintained at a predetermined level."**

The examiner respectfully disagrees since Miyake '963 does teach determining whether the contrast (as shown in fig. 18 as an area between MAX and MIN as more clearly seen in fig. 3 as "c") in the original image data can be maintained (as done in fig. 19 as a new set of MAX and MIN values that are at the same level of MAX and MIN values of fig. 18 corresponding to a bold line) at a predetermined level (since the MAX and MIN values were determined previously in fig. 17,num. 1102). With respect to "determining whether," wherein "whether" is treated as an exclusive "or" limitation, Miyake '963 performs a determining step when comparing the contrasts of fig. 18:4filt(k)-3th and concludes that 4filt(k)-3th has an "increased contrast" in col. 14, lines 13,14. Since 4filt(k)-3th has an increased contrast, Miyake '963 then clips the contrast of 4filt(k)-3th to the original contrast by setting "limitation values" in col. 14, line 16 thus maintaining the original contrast. Miyake is not clear for a case when the contrast of 4filt(k)-3th does not have an increased contrast.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. Claims 5,15,21,25 and 29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Miyake (US Patent 5,875,268) in view of Taylor (US Patent 6,020,863).

Regarding claim 5, Miyake discloses an image transform method, for transforming original input image data into image data expanded by a ratio represented by a rational number or an integer, comprising the steps of:

a) forming an image by linearly expanding original image data in the vertical and horizontal directions (as indicated in fig. 44,num. 715 relative to fig. 44,num. 712); and

b) reducing the vertical and horizontal directional correlation (or "create a smooth edge" in col. 25, line 4) of said image through a rank order processing (fig. 44,num. 720 that uses information that is identified as a "central position" in col. 5, line 66 which are shown in fig. 44, num. 715 as F,G,J and K) to generate a final expanded image, wherein the rank order processing includes:

a) raster-scanning a window (as shown in fig. 44, num. 711) enclosing a target pixel (F,G,J and K of said 711) and one or more of its neighboring pixels (any other letter of fig. 44, num. 711); and

b) computing the output value (upon the output of fig. 44,num. 717) of the target pixel by performing an averaging operation (fig. 44, num. 717) on the pixels enclosed within the window.

Miyake does not teach the claimed raster-scanning, but teaches that the invention can be "installed in an image output apparatus" in col. 22, lines 41,42, but does not show how the invention can be installed in such an apparatus.

Taylor teaches an output apparatus as shown in fig. 2,num. 200 that teaches that fig. 2,num. 108 performs "interpola-tion" in col. 4, lines 45,46 and the claimed raster-scanning (or "raster scan" in col. 5, line 14) a window (fig. 2,num. 154).

It would have been obvious (see paragraph 2, above) at the time the invention was made to one of ordinary skill in the art to modify Miyake's teaching of installing the invention with an output apparatus that includes "buffers" in col. 22, line 42 with Taylor's fig. 2,num. 200, because Taylor's teaching of fig. 2,num. 108 includes an "most important" in relation to "display data interpola-tion" in col. 4, lines 45,46 in col. 4, line 52 feature that "controls the raster of pixel data from frame buffer **110**" in col. 4, lines 49,50 that is used for displaying on a screen. Thus, Taylor provides a teaching that displays that is more important than interpolation, because without the teaching, the results of interpolation cannot be seen.

Claim 15 is rejected the same as claim 5. Thus, argument similar to that presented above for claim 5 is equally applicable to claim 15.

Regarding claim 21, Miyake of the combination teaches an article of manufacture comprising:

a) a computer usable medium (or "buffer" in col. 22, line 49) having computer readable program code means embedded therein for causing image transformation, the computer readable program code means in said article of manufacture comprising:

a1) computer readable program code means ("algorithm" in col. 24, line 7) for causing a computer to effect the steps of claim 5.

Claims 25 and 29 are rejected the same as claim 21. Thus, argument similar to that presented above for claim 21 is equally applicable to claims 25 and 29.

6. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Miyake (US Patent 5,917,963 A) in view of Lee (US Patent 6,285,798 B1).

Regarding claim 6, Miyake teaches an image transform method, for transforming original input image data into image data expanded by a ratio represented by a rational number or an integer comprising the steps of:

a) forming an image by linearly expanding original image data in the vertical and horizontal directions (Fig. 5,num. 103: LINEAR INTERPOLATION PORTION expands an original image in the "vertical... and horizontal direction[s]" in col. 5, lines 58,59.); and

b) reducing (Fig. 5, num. 201: PIXEL VALUE DETERMINATION PORTION as mentioned in col. 9, lines 41,42 reduces by generating an "emphasized edge without jaggedness (col. 9, line 53).") the vertical and horizontal directional correlation of said image (Fig. 5, num. 201: PIXEL VALUE DETERMINATION PORTION as mentioned in col. 9, lines 41,42 reduces by generating an "emphasized edge without jaggedness (col. 9, line 53)." The vertical and horizontal directional correlation from the output of fig. 5,num. 103: LINEAR INTERPOLATION PORTION via num. 105.) through a rank order processing (Fig. 5, num. 201: PIXEL VALUE DETERMINATION PORTION as mentioned in col. 9, lines 41,42 reduces by generating an "emphasized edge without jaggedness (col. 9, line 53)." The vertical and horizontal directional correlation from the output of fig. 5,num. 103: LINEAR INTERPOLATION PORTION via num. 105 and through a rank order processing as shown in fig. 5,num. 104: MEDIAN VALUE CALCULATION PORTION which arranges values from a MIN to MAX from...

...fig. 5,num. 102 and selects the median or middle value.) to generate a final expanded image (Fig. 5, num. 201: PIXEL VALUE DETERMINATION PORTION as mentioned in col. 9, lines 41,42 reduces by generating an "emphasized edge without jaggedness (col. 9, line 53)." The vertical and horizontal directional correlation from the output of fig. 5,num. 103: LINEAR INTERPOLATION PORTION via num. 105 and through a rank order processing as shown in fig. 5,num. 104: MEDIAN VALUE CALCULATION PORTION which arranges values from a MIN to MAX from fig. 5,num. 102 and selects the median or middle value to generate a final expanded image 109 of fig. 5.)

c) determining, for said expanded image, whether the contrast in said original image data can be maintained (see paragraph 15 above and Fig. 1,num. 107: LUT determines for said expanded image of fig. 5,num. 109 whether the contrast or "sharpness" in col. 7, line 13 mentioned in the context of "contrast data" in col. 7, line 10 in said "original [image] data" in col. 7, line 15 outputted from fig. 5,num. 101: LINE BUFFER can be maintained or "controlled" in col. 7, line 14.) at a predetermined level (Fig. 1,num. 107: LUT determines for said expanded image of fig. 5,num. 109 whether the contrast or "sharpness" in col. 7, line 13 mentioned in the context of "contrast data" in col. 7, line 10 in said "original [image] data" in col. 7, line 15 outputted from fig. 5,num. 101: LINE BUFFER can be maintained or "controlled" in col. 7, line 14 at a predetermined level or "depending on a size of an edge associated with the original data" in col. 7, lines 14,15.); and

Miyake does not teach the additional limitations, but does suggest modifying fig. 5, num. 201 with a "high pass filter" in col. 9, line 55 for "edge emphasis" in col. 9, line 54.

Lee, uses a high pass filter (fig. 4,num. 60: FILTER) to emphasize an edge (fig. 4,num. 60: FILTER extracts "the high frequency details" in col. 11, line 50) as suggested by Miyake, comprising:

d) extracting a high frequency component (Fig. 4,num. 70: FILTER extracts "the high frequency details" in col. 11, line 50) from said expanded image (Fig. 4,num. 60: FILTER extracts "the high frequency details" in col. 11, line 50 from an image, D as shown in fig. 4.), when a contrast cannot be maintained (Fig. 4,num. 70: FILTER extracts "the high frequency details" in col. 11, line 50 from an image, D as shown in fig. 4 when a contrast cannot be maintained as determined in fig. 4,num. 90: CONTRAST GAIN-CONTROL (CGC) which maintains or "suppresse[s illumination edges] (col. 11, lines 56,57)".) at said predetermined level (Fig. 4,num. 70: FILTER extracts "the high frequency details" in col. 11, line 50 from an image, D as shown in fig. 4 when a contrast cannot be maintained as determined in fig. 4,num. 90: CONTRAST GAIN-CONTROL (CGC) which maintains or "suppresse[s illumination edges] (col. 11, lines 56,57)" where the illumination edges are suppressed at a predetermined level or "large gradient amplitudes" in col. 11, line 27.), and

e) adding said frequency component (Fig. 4,num. 70 contains a summation symbol that corresponds to the claimed adding said frequency component or high frequency details.) multiplied by a constant (Fig. 4,num. 70 contains a summation symbol that corresponds to the claimed adding said frequency component or high frequency details multiplied via num. 110a which corresponds to a factor "G_1" of fig. 4 and fig .2 shows a multiplication symbol.) to said expanded image (Fig. 4,num. 70 contains a summation symbol that corresponds to the claimed adding said frequency component or high frequency details multiplied via num. 110a, which corresponds to a factor "G_1" of fig. 4 and fig .2 shows a multiplication symbol, to said image D or D_1 of fig. 4.), or subtracting said frequency component multiplied by a constant from said expanded image.

It would have been obvious at the time the invention was made to one of ordinary skill in the art to modify Miyake's teaching of using an expanded image of fig. 5,num. 109 and high pass filter with Lee's teaching of contrast with filter that extract high frequency details of fig. 4, because Lee's teaching of fig. 4 suppresses "artifacts" in col. 11, line 8.

7. Claims 10,11,13,16,17,28 and 30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Huang (US Patent 6,295,091) in view of Greggain et al. (US Patent 5,991,463).

Regarding claim 10, Huang teaches an image processing apparatus comprising:

a) input means (via an equation in col. 4, line 3,4) for entering original image data ("PixelAbove" in said equation) to be expanded (corresponding to "interpolation" in col. 4, line 1);

b) vertical and horizontal directional interpolation means (as indicated by the horizontal and vertical arrows of fig. 5) for interpolating said original image data in the vertical and horizontal directions;

c) vertical and horizontal directional correlation reduction means (fig. 10, num. 1040) for reducing correlation ("stair-step artifacts" in col. 4, line 20 and shown in fig. 8b that are processed to create an "even diagonal dark edge" in col. 6, lines 5,6) of the obtained image in the vertical and horizontal directions;

d) oblique direction detection means (fig. 10,num. 1030) for detecting an oblique direction (corresponding to fig. 10: PixelAboveLeft) having

a strong correlation (or "minimal vari-ance" in col. 5, lines 31,32) with a target pixel (center of fig. 8a) and neighboring pixels (as shown in fig. 8a) in said original image data, wherein the neighboring pixels comprise:

d1) a first neighboring pixel and

d2) a second neighboring pixel, and

e) wherein detecting an oblique direction comprises:

e1) calculating a left oblique difference (as done in fig. 10,num. 1030) using the target pixel and the first neighboring pixel;

e2) calculating a right oblique difference (as done in fig. 10,num. 1030) using the target pixel and the second neighboring pixel;

e3) detecting the left oblique direction (fig. 8b,num. 840) to be the oblique direction when the left oblique difference is smaller than a threshold value and when the right oblique difference is greater than a threshold value; and

e4) detecting the right oblique direction (fig. 8b,num. 860) to be the oblique direction when the left oblique difference is greater than a threshold value and when the right oblique difference is smaller than a threshold value; and

f) directional interpolation means (fig. 10,num. 1050) for employing said neighboring pixels in said detected oblique direction to perform interpolation in said oblique direction.

Huang does not teach the claimed:

a) "when the left oblique difference is smaller than a threshold value and when the right oblique difference is greater than a threshold value", but teaches a method in fig. 9 and apparatus in fig. 10 of determining a minimum difference in order to detect the claimed left oblique direction. However, Huang is not clear as to how a minimum difference is selected. By reference to fig. 10,num. 1030, "logic" in col. 6, line

9 selects a minimum difference. Thus, Huang suggests to one of ordinary skill in the art of logic to use a teaching that shows how to select a minimum difference.

Greggain teaches a "selection logic" in col. 10, line 20 as shown in fig. 26, num. 482 as suggested by Huang and the remaining limitations of:

a) detecting the left oblique direction (via fig. 10,num. 156 corresponding to fig. 7B,num. 72) to be the oblique direction when the left oblique difference (fig. 10,num. 140) is smaller than a threshold value (as indicated in a "YES" branch in fig. 7B,num. 70 meaning that the left oblique direction is within or smaller than the threshold of fig. 7B,num. 70) and when the right oblique difference (fig. 10,num. 146) is greater than a threshold value (as indicated in the YES branch of fig. 7B,num. 70 meaning that the right oblique direction does not fall within or is greater than the threshold of fig. 7B,num. 70 while the left oblique direction is within or smaller than the threshold of fig. 7B,num. 70); and

b) detecting the right oblique direction to be the oblique direction when the left oblique difference is greater than a threshold value and when the right oblique difference is smaller than a threshold value (this limitation is similar to the detecting the left oblique direction addressed above, thus, the rejection of detecting the left oblique direction addressed above and is similarly applicable to the claimed detecting the right oblique direction).

It would have been obvious at the time the invention was made to one of ordinary skill in the art to modify Huang's logic and consideration of stair-step artifacts with Greggain's teaching of fig. 26,num. 482, because Greggain's teaching "provides

advantages...to allow large magnified images to be created with reduced stairstepping..." in col. 3, lines 32,33.

Regarding claim 11, Huang of the combination teaches the image processing apparatus according to claim 10, further comprising:

a) generation means (upon the output of fig. 10,num. 1050) for generating expanded image data based on an image (upon the output of fig. 10,num. 1040) obtained by said vertical and horizontal directional correlation reduction means (fig. 10,num. 1040) and an image (upon the output of fig., 10,num. 1040) obtained by said oblique directional interpolation means (fig. 10,num. 1040: Note that 1040 performs the claimed reduction corresponding to said creating said even diagonal dark edge and interpolation).

Claim 13 is rejected the same as claim 10. Thus, argument similar to that presented above for claim 10, paragraph c), above is equally applicable to claim 13.

Claim 16 is rejected the same as claim 10. Thus, argument similar to that presented above for claim 10 is equally applicable to claim 16.

Regarding claim 17, Greggain of the combination teaches the image processing apparatus according to claim 16, wherein said interpolation direction determination unit (fig. 10,num. 156):

a) reads peripheral pixels arranged within a predetermined mask range (as indicated in fig. 1:R) adjacent to said target (represented in fig.1 as "W") pixel and/or said neighbor pixels and

b) adds together the differences (or "difference values are summed" in col. 12, lines 52,53) between said peripheral pixels and said target pixel and said neighbor pixels, and

c) determines said interpolation direction (fig. 26,num. 482) based on the cumulative value of said differences (corresponding to fig. 26, numerals 446 and 452).

Regarding claim 28, Greggain of the combination teaches an article of manufacture comprising:

a) a computer usable medium (fig. 28:ROM) having computer readable program code means embedded therein for causing image transformation, the computer readable program code means in said article of manufacture comprising:

a1) computer readable program code means ("coefficients" in col. 13, line 47) for causing a computer to effect the steps of claim 10.

Claim 30 is rejected the same as claim 28. Thus, argument similar to that presented above for claim 28 is equally applicable to claim 30.

8. Claim 12 rejected under 35 U.S.C. 103(a) as being unpatentable over Huang (US Patent 6,295,091 B1) in view of Greggain et al. (US Patent 5,991,463) as applied to claim 11 above, and further in view of Miyamoto (US Patent 6,084,560).

Regarding claim 12, the combination does not teach claim 12, but Huang teaches that the invention was created to be used for "video display...applications of computer systems."

Miyamoto teaches a video display system as shown in fig. 1 that includes a "DISPLAY UNIT 13" and a computer system as shown in fig. 1,num. 1 as suggested by Huang and the limitations of claim 12 of:

a) input means (upon the input of fig. 11: IMAGE QUALITY & POSITION INFORMATION) for entering, as an adjustment value (fig. 1,num. 14), the personal preference of a user (fig. 1,num. 15) concerning image quality,

b) wherein a generation means (fig. 1,num. 11) employs said adjustment value to synthesize said image obtained by said vertical and horizontal directional correlation reduction means with said image obtained by said oblique directional interpolation means.

It would have been obvious at the time the invention was made to one of ordinary skill in the art to modify Huang's teaching of interpolation with Miyamoto's system of fig. 1,num. 11, because Miyamoto's system provides allows a user to control image quality such as "gamma correction information, brightness and contrast information." in col. 5, lines 44,45 according to a user's viewing preference.

9. Claims 1,20 and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Clatanoff et al. (US Patent 5,592,231) in view of Greggain et al. (US Patent 5,991,463).

Regarding claim 1, Clatanoff discloses an image transform method, for transforming original input image data into image data expanded by a ratio represented by a rational number or an integer, comprising the steps of:

a) reducing correlation (or "eliminate artifacts" in col. 2, line 31) in the vertical and horizontal directions (or "stair step" in col. 1, line 40) of an image that is linearly expanded (via an "interpo-lation process" in col. 1, lines 47,48) in the vertical and horizontal directions to generate first expanded image data (upon the output of fig. 2,num. 28:K) by a rank order processing (fig. 2,num. 45) in a window (as shown by the square of fig. 4b) having a predetermined size ("5-tap" in col. 3, line 45) wherein a target pixel and its neighboring pixels in the linearly expanded image data are included;

b) performing linear interpolation (via the plus sign of fig. 2 that outputs "A"), based on correlation (fig. 5: DIFFERENCES) with a target pixel constituting said original image data and neighboring pixels arranged in oblique directions, using said neighboring pixels to generate second expanded image data (said "A") by determining an interpolation direction (fig. 5: AF is a diagonal direction) wherein the neighboring pixels comprise:

b1) a first neighboring pixel and a second neighboring pixel, and

b2) wherein determining an interpolation direction comprises:

b21) calculating a left oblique difference (said "AF") using the target pixel and the first neighboring pixel;

b22) calculating a right oblique difference (fig. 5:CD) using the target pixel and the second neighboring pixel;

b23) determining the left oblique direction to be the interpolation direction when the left oblique difference is smaller than a threshold value and when the right oblique difference is greater than a threshold value; and

b24) determining the right oblique direction to be the interpolation direction when the left oblique difference is greater than a threshold value and when the right oblique difference is smaller than a threshold value; and

c) employing said first expanded image data (said "K") and said second expanded image data (said "A") in an arithmetic combination (or equation "Y" in fig. 2) to generate a final image.

Clatanoff does not teach limitation b23) and b24, but teaches "the edge direction is selected to be the minimum...One way to implement this...[for] interpolation (col. 5, lines 35-40)." Thus, Clatanoff suggests that other ways are available to select the minimum for interpolation.

Greggain teaches a method of obtaining the minimum in fig. 7A,num. 58 for interpolation and limitations b23) and b34) as addressed in claim 10, above.

It would have been obvious at the time the invention was made to one of ordinary skill in the art to modify Clatanoff's teaching of obtaining a minimum with Greggain's teaching of obtaining a minimum, because Greggain's teaching of selecting a minimum "assist[s] in the selection process" in col. 6, lines 37,38 so as to assist in selecting the "proper interpolation direction since an incorrect decision will yield an enlarged image with noticeable discontinuities in diagonal lines (col. 6, lines 36-38)."

Regarding claim 20, Clatanoff of the combination teaches an article of manufacture comprising:

a) a computer usable medium (or "instruction space" in col. 3, line 57) having computer readable program code means embedded therein for causing image transformation, the computer readable program code means in said article of manufacture comprising:

a1) computer readable program code means ("algorithm" in col. 3, line 56) for causing a computer to effect the steps of claim 1.

Claim 24 is rejected the same as claim 20. Thus, argument similar to that presented above for claim 20 is equally applicable to claim 24.

Conclusion

10. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dennis Rosario whose telephone number is (571) 272-7397. The examiner can normally be reached on 9-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Matthew Bella can be reached on (571) 272-7778. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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